

AMENDMENTS TO THE CLAIMS

1-37. (Canceled).

38. (Previously Presented) A containment device for positioning at a left atrial appendage, comprising:

a proximal end, a distal end, an intermediate portion between the proximal and distal ends, and a longitudinal axis extending therethrough;

at least three supports extending between the proximal end and the distal end;

each support comprising an elongate, flexible element which is movable from a first orientation in which the element extends substantially parallel to the axis at no more than a first distance from the axis, to a second orientation in which at least a portion of the element is inclined toward the intermediate portion with respect to the axis and is separated by at least a second distance from the axis which is greater than the first distance, wherein the intermediate portion in the second orientation is sized and configured to engage a surface at the left atrial appendage and the supports in their second orientation increase radially in dimension from the proximal end to an apex portion and then decrease radially in dimension from the apex portion to the distal end; and

an endothelialization membrane carried by the device, for promoting endothelialization across the left atrial appendage,

wherein the endothelialization membrane at least in part comprises a first membrane on a first side of the supports, a second membrane on a second side of the supports, and a bonding layer for bonding the first membrane and the second membrane together.

39. (Previously Presented) A containment device as in Claim 38, comprising at least five supports.

40. (Previously Presented) A containment device as in Claim 38, comprising from about five supports to about twenty supports.

41. (Previously Presented) A containment device as in Claim 38, further comprising a proximal hub at the proximal end and a distal hub at the distal end.

42. (Previously Presented) A containment device as in Claim 41, wherein the supports and the proximal hub and the distal hub are formed from a tube.

43. (Previously Presented) A containment device as in Claim 41, wherein the supports and the proximal hub and the distal hub are formed from a sheet.

44. (Previously Presented) A containment device as in Claim 38, further comprising at least one barb on each support.

45. (Previously Presented) A containment device as in Claim 40, further comprising at least one barb on each of at least two supports.

46-50. (Canceled).

51. (Previously Presented) A containment device for implantation at an opening in the body, comprising:

a support member movable from a reduced cross-section to an enlarged cross-section, the support member in the enlarged cross-section extending from a proximal end and inclining radially outward to an apex portion, and then inclining radially inward to a distal end; and

a porous endothelialization membrane carried by the support member,

wherein the endothelialization membrane at least in part comprises a first membrane on a first side of the support member, a second membrane on a second side of the support member, and a bonding layer for bonding the first membrane and the second membrane together.

52. (Previously Presented) A containment device as in Claim 51, further comprising at least one hub on the support member and a plurality of spokes extending therefrom.

53. (Previously Presented) A containment device as in Claim 52, wherein the support member comprises at least eight spokes.

54. (Previously Presented) A containment device as in Claim 52, wherein at least one spoke has a first end and a second end, and the first end is attached to the hub.

55. (Previously Presented) A containment device as in Claim 52, wherein each spoke comprises a proximal section, a distal section, and a bend in between the proximal and distal sections when the support member is in the enlarged cross-section.

56. (Previously Presented) A containment device as in Claim 51, wherein the support member comprises wire.

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57. (Previously Presented) A containment device as in Claim 52, wherein the spokes are cut from a tube.

58. (Previously Presented) A containment device as in Claim 51, further comprising at least one tissue attachment element on the support.

59. (Previously Presented) A containment device as in Claim 58, wherein the tissue attachment element comprises a tissue piercing element.

60. (Previously Presented) A containment device as in Claim 52, comprising at least one barb on each spoke.

61. (Previously Presented) A containment device as in Claim 38, wherein the supports comprise a nickel titanium alloy.

62. (Previously Presented) A containment device as in Claim 38, wherein the supports comprise stainless steel.

63. (Previously Presented) A containment device as in Claim 38, wherein the first and second membranes comprise ePTFE.

64. (Previously Presented) A containment device as in Claim 38, wherein the first and second membranes comprise Dacron.

65. (Previously Presented) A containment device as in Claim 38, where the first and second membranes comprise nylon.

66. (Previously Presented) A containment device as in Claim 38, wherein the endothelialization membrane has a pore size of no greater than about 0.04 inches.

67. (Previously Presented) A containment device as in Claim 38, wherein the containment device comprises a self expandable structure.

68. (Previously Presented) A containment device as in Claim 38, wherein the containment device comprises a self expandable wire structure.

69. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises wire mesh.

70. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises braided wire.

71. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises wire coil.

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72. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises shape memory material.

73. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises pseudoelastic alloy.

74. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises nickel titanium alloy.

75. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises stainless steel.

76. (Previously Presented) A containment device as in Claim 67, wherein the self expandable structure comprises composite material.

77. (Previously Presented) A containment device as in Claim 51, further comprising at least one tissue attachment element on the support member.

78. (Previously Presented) A containment device as in Claim 52, wherein the spokes comprise a nickel titanium alloy.

79. (Previously Presented) A containment device as in Claim 52, wherein the spokes comprise stainless steel.

80. (Previously Presented) A containment device as in Claim 51, wherein the first and second membranes comprise ePTFE.

81. (Previously Presented) A containment device as in Claim 51, wherein the first and second membranes comprises Dacron.

82. (Previously Presented) A containment device as in Claim 51, where the first and second membranes comprises nylon.

83. (Previously Presented) A containment device as in Claim 51, wherein the endothelialization membrane has a pore size of no greater than about 0.04 inches.

84. (Previously Presented) A containment device as in Claim 51, wherein the containment device comprises a self expandable structure.

85. (Previously Presented) A containment device as in Claim 84, wherein the containment device comprises a self expandable wire structure.

86. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises wire mesh.

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87. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises braided wire.

88. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises wire coil.

89. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises shape memory material.

90. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises pseudoelastic alloy.

91. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises nickel titanium alloy.

92. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises stainless steel.

93. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure comprises composite material.

94. (Previously Presented) A containment device as in Claim 84, wherein the self expandable structure has at least one proximally concave surface and at least one distally concave surface when in an expanded configuration.

95. (Previously Presented) A containment device as in Claim 51, wherein the bonding layer comprises a mesh.

96. (Previously Presented) A containment device as in Claim 95, wherein the mesh comprises polyethylene.

97. (Previously Presented) A containment device as in Claim 96, wherein the mesh has an open surface area within the range of from about 10% to about 90%.

98. (Previously Presented) A containment device as in Claim 96, wherein the mesh has an open surface area within the range of from about 30% to about 60%.

99-100. (Canceled)

101. (Currently Amended) A device for implantation within a left atrial appendage of a patient, the device comprising:

an expandable frame having a proximal end, a distal end, and a longitudinal axis extending therethrough, the frame comprising a plurality of supports;

each support comprising an elongate, flexible element, at least some of the supports being movable from a first orientation in which the element extends substantially parallel to the axis at no more than a first distance from the axis, to a second orientation in which at least a portion of the element is inclined with respect to the axis and is separated by at least a second distance from the axis which is greater than the first distance, wherein the supports in their second orientation increase radially in dimension from the proximal end to an apex portion and then decrease radially in dimension from the apex portion to the distal end; and

an endothelialization membrane attached to at least a proximal face of the device having a pore size sufficient to permit endothelialization, the proximal face of the device comprising at least in part the inclined portion of a plurality of the flexible elements and being sized and configured to block an opening to the left atrial appendage;

wherein the endothelialization membrane has a porosity in the range of about 5 to about 60 microns, and wherein the device is adapted to be separated from a delivery device to be implanted within the left atrial appendage.

102-105. (Canceled)

106. (Previously Presented) The device of Claim 101, wherein the endothelialization membrane comprises a first membrane and a second membrane, wherein the first membrane and second membrane are attached to each other on opposite sides of the supports.

107. (Previously Presented) The device of Claim 101, further comprising a proximal hub at the proximal end and a distal hub at the distal end.

108. (Previously Presented) The device of Claim 101, wherein the supports comprise a nickel titanium alloy.

109. (Previously Presented) The device of Claim 101, wherein the membrane comprises ePTFE.

110-128. (Canceled)

129. (Previously Presented) A containment device as in Claim 51, wherein the device in its enlarged cross-section has a maximum transverse dimension adapted to engage a surface at a left atrial appendage.

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130. (Previously Presented) A containment device as in Claim 51, wherein the apex portion is elongated in an axial direction.

131. (Currently Amended) A device for implantation within a left atrial appendage of a patient, the device comprising:

an expandable frame having a generally cylindrical configuration when fully expanded having a proximal end and a distal end, the frame sized and configured to be positioned at the left atrial appendage; and

a membrane provided over and closing off the proximal end of the frame to prevent the passage of embolic material through the frame, wherein the membrane is made of ePTFE, and wherein the ePTFE membrane endothelializes after implantation.

132. (Previously Presented) The device of Claim 131, wherein the frame is expandable to the generally cylindrical configuration.

133. (Previously Presented) The device of Claim 131, wherein the frame is made of wire.

134. (Previously Presented) The device of Claim 131, wherein the frame is made of a series of linked elements.

135. (Canceled)